

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* RICHARD D. PUCKETT and DAVID J. RAINBOW

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Appeal No. 2001-2441  
Application No. 09/067,923

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*ON BRIEF*

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Before OWENS, LIEBERMAN, and TIMM, *Administrative Patent Judges*  
OWENS, *Administrative Patent Judge*.

*DECISION*

This appeal is from the final rejection of claims 12, 14 and 16-18. Claim 15, which is the only other claim remaining in the application, stands withdrawn from consideration by the examiner as being directed toward a nonelected invention.

*THE INVENTION*

The appellants claim a thermal transfer ribbon having a specified thermal transfer layer which, if transferred to a

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receiving substrate, would be receptive to thermal transfer ink.

Claims 12 and 14 are illustrative:

12. A thermal transfer ribbon comprising a flexible substrate and a coating on said substrate of a thermal transfer material which provides a receptive layer for thermal transfer ink when transferred to a receiving substrate, wherein said thermal transfer material comprises wax, elastomeric resin and a pigment and the weight of said coating on said substrate ranges from 7.75 to 23.25 g/m<sup>2</sup>.

14. A thermal transfer ribbon comprising a flexible substrate and a coating on said substrate of a thermal transfer material which provides a receptive layer for thermal transfer ink when transferred to a receiving substrate, wherein said thermal transfer material comprises wax, 5-40 wt. %, elastomeric resin and 5-80% wt. %, white pigment based on the total dry ingredients of said thermal transfer material and the weight of said coating on said substrate ranges from 7.75 to 23.25 g/m<sup>2</sup>.

#### *THE REFERENCE*

Tokunaga et al. (Tokunaga)                      4,463,034                      Jul. 31, 1984

#### *THE REJECTION*

Claims 12, 14 and 16-18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Tokunaga.

#### *OPINION*

We affirm the rejection of claims 12, 14, 16 and 18, and reverse the rejection of claim 17.

The appellants separately argue only claims 12, 14 and 17. We therefore limit our discussion to these claims. Claims 16 and 18 stand or fall with claim 14 from which they depend. See *In re Burckel*, 592 F.2d 1175, 1178-79, 201 USPQ 67, 70 (CCPA 1979); *In re Herbert*, 461 F.2d 1390, 1391, 174 USPQ 259, 260 (CCPA 1972); 37 CFR § 1.192(c)(7) (1997).

*Claim 12*

Tokunaga discloses a thermal magnetic transfer ribbon comprising a flexible substrate and a coating on the substrate of a thermal transfer material comprising 20-70 wt% wax, 0-30 wt% resin, 0-30 wt% extender pigment, 0-30 wt% fat and oil, 0-2 wt% dispersant, and 30-97 wt% ferromagnetic powder (col. 1, lines 6-10; col. 2, lines 39-49; col. 3, lines 43-49). The thickness of the thermal transfer material preferably is 2-25 $\mu$  (col. 3, lines 42-43).

Tokunaga's disclosed waxes are carnauba wax, montan wax, paraffin wax, microcrystalline wax and bees wax (col. 3, lines 6-8), all of which are among the appellants' waxes (specification, page 6, lines 20-23). Tokunaga's amount of wax, 20-70 wt%, encompasses the appellants' preferred (25-55 wt%) and

most preferred (40-50 wt%) amounts of wax (specification, page 7, lines 1-2).

Tokunaga's disclosed resins include many of the resins disclosed by the appellants as elastomeric resins (specification, page 7, lines 3-13), including polyvinyl chloride, polyvinyl acetate, vinyl chloride-vinyl acetate copolymer, polyethylene, polypropylene, ethylene-vinyl acetate copolymer, styrene-butadiene rubber, nitrile rubber, polyacrylate rubber and ethylene-propylene rubber (col. 3, lines 17-29). Tokunaga's amount of resin, 0-30 wt%, overlaps the appellants' preferred range of 5-40 wt% and encompasses the appellants' particularly preferred range of 10-20 wt% (specification, page 7, lines 13-15).

The appellants disclose about their pigment only that it is preferably light colored, can be white, is present in an amount of 5-80 wt%, preferably 40-50 wt%, of the total dry ingredients in the thermal transfer material, and typically is desired at a high loading of 50 wt% (specification, page 7, lines 20-26; original claim 4). The amount of Tokunaga's extender pigments, 0-30 wt%, overlaps the appellants' range of 5-80 wt%. Also,

Tokunaga's ferric oxide and chromic oxide ferromagnetic powders, which are present in an amount of 30-97 wt%, are conventional pigments.<sup>1</sup>

The disclosed ranges of Tokunaga's fat, oil and dispersant include zero. Hence, these components need not be used.

The appellants' disclosed thermal transfer material, when present as a coating in solution/dispersion/emulsion form having a solids content of typically 25-60 wt%, preferably 25-45 wt%, preferably has a thickness of 0.0005 to 0.002 inches (12.7-50.8 $\mu$ ) (specification, page 8, lines 7-12). Hence, the thickness range of the appellants' dried thermal transfer material reasonably appears to overlap the 2-25 $\mu$  thickness range and, therefore, the coating weight, of Tokunaga's thermal transfer material.

Tokunaga, therefore, discloses a thermal transfer ribbon which can have each element in the appellants' claim 12 within a range overlapping the appellants' corresponding range. Hence, the appellants' claimed thermal transfer ribbon would have been *prima facie* obvious to one of ordinary skill in the art over

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<sup>1</sup> See *Hackh's Chemical Dictionary* 156, 263 (Julius Grant ed., McGraw-Hill 1969).

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Tokunaga. See *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

The appellants argue that overprinting is inconsistent with the intended use of Tokunaga's thermal transfer layer for providing magnetic images which are readable by a magnetic ink character reader, and that Tokunaga does not suggest that the disclosed magnetic thermal transfer layer can be overprinted with thermal transfer ink (brief, page 4). The appellants argue that Tokunaga's ink may be too slippery for transfer thereto of thermal transfer ink or may melt under the heat of a thermal transfer printing head, and that one of ordinary skill in the art would not assume that Tokunaga's thermal transfer layer provides a receptive layer for similar inks absent a hint or direction that Tokunaga's thermal transfer layer has receptive properties (brief, page 5; reply brief, page 3). The appellants, however, have not provided evidence that Tokunaga's disclosed thermal transfer layers are not receptive to thermal transfer ink or provided evidence or technical reasoning which shows that only Tokunaga's thermal transfer layers which are within the scope of the appellants' claim 12 are receptive to thermal transfer ink.

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Tokunaga does not address whether his thermal magnetic transfer layer is receptive to thermal transfer ink. However, for a *prima facie* case of obviousness to be established, Tokunaga need not be modified for the purpose of solving the problem addressed by the appellants. See *In re Kemps*, 97 F.3d 1427, 1430, 40 USPQ2d 1309, 1311 (Fed. Cir. 1996); *In re Beattie*, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992); *In re Dillon*, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (*en banc*), *cert. denied*, 500 U.S. 904 (1991); *In re Lintner*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). As discussed above, Tokunaga's disclosure encompasses thermal magnetic transfer ribbons having, on a flexible substrate, a thermal transfer layer which is made of the appellants' wax, resin and pigment, in amounts including those used by the appellants, and which has a thickness range and, therefore, a coating weight range, which overlaps that of the appellants. Hence, Tokunaga would have fairly suggested, to one of ordinary skill in the art, a thermal transfer ribbon which is made for a different purpose than that of the appellants but which falls within the scope of the appellants' claim 12.

The appellants argue that Tokunaga's examples do not include thermal transfer layer thicknesses which are within a range overlapping that of the appellants (brief, pages 4-5). Tokunaga's disclosure, however, is not limited to the examples. See *In re Fracalossi*, 681 F.2d 792, 794 n.1, 215 USPQ 569, 570 n.1 (CCPA 1982); *In re Mills*, 470 F.2d 649, 651, 176 USPQ 196, 198 (CCPA 1972). As discussed above, Tokunaga would have fairly suggested, to one of ordinary skill in the art, thermal transfer layer thicknesses and, therefore, coating weights, within the appellants' ranges. Regardless, it reasonably appears that Tokunaga's exemplified 6 $\mu$  and 8 $\mu$  transfer layer thicknesses (col. 4, lines 24 and 50) are within the thickness range of the appellants' dried thermal transfer layer which is applied as a solution/dispersion/emulsion having a preferred thickness of 12.7-50.8 $\mu$  and a typical solids content of 25-60 wt% (specification, page 8, lines 7-13).

As indicated by the above discussion, a *prima facie* case of obviousness of the thermal transfer ribbon recited in the appellants' claim 12 has been established and has not been effectively rebutted by the appellants. Accordingly, we conclude



that this thermal transfer ribbon would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103.

*Claim 14*

The amounts of Tokunaga's wax, resin and pigment, and Tokunaga's thermal transfer layer thicknesses, which are discussed above, overlap those in the appellants' claim 14.

The appellants argue that Tokunaga does not provide a hint or suggestion as to what effect pigments have on receptive properties, and that one of ordinary skill in the art could not predict that thick transfer layers having a 5-80 wt% white pigment loading would function as a receptive layer (brief, page 6).

Tokunaga's disclosed extender pigments include a white pigment (calcium carbonate), and Tokunaga teaches that the extender pigment can be present in an amount of 0-30 wt%, which overlaps the range of 5-80 wt% recited in the appellants' claim 14. Use of calcium carbonate in the overlapping range would have been *prima facie* obvious to one of ordinary skill in the art. See *In Malagari*, 499 F.2d at 1303, 182 USPQ at 553.

Tokunaga does not address whether a thermal magnetic transfer layer containing such an amount of calcium carbonate pigment and containing the ferromagnetic powders which are pigments would be receptive to thermal transfer ink. However, Tokunaga would have fairly suggested to one of ordinary skill in the art, for the purpose of providing a thermal magnetic transfer ribbon, a thermal transfer layer which has amounts of white pigment and total pigment within the appellants' 5-80 wt% range and, as discussed above, otherwise falls within the scope of the appellants' claim 14 and which, therefore, has the properties of the appellants' claimed thermal transfer ribbon.

Hence, we conclude that the thermal transfer ribbon recited in the appellants claim 14 would have been obvious to one of ordinary skill in the art over Tokunaga.

*Claim 17*

Claim 17, which depends from claim 14, recites that the pigment comprises 40-50 wt% of the total dry ingredients within the thermal transfer material.

The examiner points out that the upper limit of Tokunaga's range of extender pigment, which can be white, is 30 wt%, and

that the ferromagnetic powder, which can be a pigment, can be present in an amount of 30-97 wt% (answer, page 7). The examiner argues that "[s]ince the overall pigment quantity may be greater than [sic, than] 50%, it would have been obvious to one of ordinary skill in this art to optimize operation by determining proportions of white and magnetic pigments to give desired opacity, brightness and magnetic properties". See *id.* The examiner, however, does not explain how Tokunaga would have led one of ordinary skill in the art to carry out this optimization such that the amount of white pigment is outside Tokunaga's disclosed range.

The record indicates that the motivation relied upon by the examiner for optimizing such that the amount of white pigment is 40-50 wt% comes from the appellants' disclosure of their invention rather than coming from Tokunaga and that, therefore, the examiner used impermissible hindsight in rejecting claim 17. See *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); *In re Rothermel*, 276 F.2d 393, 396, 125 USPQ 328, 331 (CCPA 1960). Accordingly, we reverse the rejection of this claim.

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*DECISION*

The rejection under 35 U.S.C. § 103 over Tokunaga is affirmed as to claims 12, 14, 16 and 18, and is reversed as to claim 17.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

*AFFIRMED-IN-PART*

TERRY J. OWENS	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
PAUL LIEBERMAN	)	APPEALS AND
Administrative Patent Judge	)	INTERFERENCES
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CATHERINE TIMM	)	
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